

AMENDMENTS TO THE SPECIFICATION

Please replace the last filed Sequence Listing with the Sequence Listing enclosed herewith.

Paragraph beginning on line 29, page 4 is amended as follows:

The present invention is directed to a substantially pure and isolated DNA fragment comprising a nucleic acid sequence as shown in SEQ ID NO. 1 or SEQ ID NO. 2, which is part of the complementary determining region-3 (CDR3) in the V.beta.16 family (BV16 gene) and V.beta.14 family (BV14 gene) ~~V.beta.14 family (BV14 gene) and V.beta.16 family (BV16 gene)~~ of T cell receptors in patients with rheumatoid arthritis (RA), respectively.

Paragraph beginning on line 5, page 5 is amended as follows:

The present invention is also directed to a substantially pure and isolated peptide having an amino acid sequence selected from the group consisting of SEQ ID NO. 3, SLS, SEQ ID NO. 4, SQD, SLL and SEQ ID NO. 5, which are derived from the CDR3 of T cell receptor beta-chain BV14 (SEQ ID NO. ~~[[3]]~~ 4 and SLS) or BV16 (SEQ ID NO. ~~[[4]]~~ 3, SQD, SLL and SEQ ID NO. 5) gene in an individual suffering from rheumatoid arthritis. Also provided is an antibody directed against such peptide.

Paragraph beginning on line 27, page 6 is amended as follows:

[0026] The present invention is still yet further directed to a method for treating rheumatoid arthritis. This method advantageously includes administering to the individual with a DNA expression vector comprising a promoter operably linked to a DNA fragment having a nucleic acid sequence encoding a single chain T cell receptor variable beta 16 (V.beta.16) ~~14 (V.beta.14)~~ peptide, or fragments thereof, and then expressing the DNA fragment in the individual. In this method, the nucleic acid sequence comprises a sequence as shown in SEQ ID NO. 1. Upon entering the individual, the DNA fragment is expressed at a level sufficient to elicit an immune response against the encoded peptide thereby preventing onset of rheumatoid arthritis or treating rheumatoid arthritis in the individual.

Paragraph beginning on line 26, page 13 is amended as follows:

The present invention is directed to a substantially pure and isolated DNA fragment comprising a nucleic acid sequence as shown in SEQ ID NO. 1 or SEQ ID NO. 2, which is part of the complementary determining region-3 (CDR3) in the V.beta.16 family (BV16 gene) and V.beta.14 family (BV14 gene) ~~V.beta.14 family (BV14 gene) and V.beta.16 family (BV16 gene)~~ of T cell receptors in patients with rheumatoid arthritis (RA), respectively.

Paragraph beginning on line 1, page 14 is amended as follows:

The present invention is also directed to a substantially pure and isolated peptide having an amino acid sequence selected from the group consisting of SEQ ID NO. 3, SLS, SEQ ID NO. 4, SQD, SLL and SEQ ID NO. 5, which are derived from the CDR3 of T cell receptor beta-chain ~~BV16~~ BV14 (SEQ

ID NO. ~~[[3]] 4~~ and SLS) or ~~BV14~~ BV16 (SEQ ID NO. ~~[[4]] 3~~, SQD, SLL and SEQ ID NO. 5) gene in an individual suffering from rheumatoid arthritis. Also provided is an antibody directed against such peptide.

Paragraph beginning on line 1, page 16 is amended as follows:

Preferably, the nucleic acid sequence encodes the complementary determining region-3 (CDR3) of V.beta.16 and comprises a sequence as shown in SEQ ID NO. ~~[[2]] 1~~. Still preferably, CDR3 of V.beta.16 comprises an amino acid sequence selected from the group consisting of SEQ ID NO. ~~[[4]] 3~~, SQD, SLL and SEQ ID NO. 5.

Paragraph beginning on line 11, page 16 is amended as follows:

The present invention is still yet further directed to a method for treating rheumatoid arthritis. This method advantageously includes administering to the individual with a DNA expression vector comprising a promoter operably linked to a DNA fragment having a nucleic acid sequence encoding a single chain T cell receptor variable beta 16 (V.beta.16) ~~14 (V.beta.14)~~ peptide, or fragments thereof, and then expressing the DNA fragment in the individual. In this method, the nucleic acid sequence comprises a sequence as shown in SEQ ID NO. 1. Upon entering the individual, the DNA fragment is expressed at a level sufficient to elicit an immune response against the encoded peptide thereby preventing onset of rheumatoid arthritis or treating rheumatoid arthritis in the individual.

Paragraph beginning on line 20, page 16 is amended as follows:

Preferably, the nucleic acid sequence encodes the complementary determining region-3 (CDR3) of V.beta.14, which comprises an amino acid sequence selected from the group consisting of SEQ ID NO. [[3]] 4 and SLS.

Paragraph beginning on line 8, page 18 is amended as follows:

PBMC specimens obtained from all patients were analyzed for HLA DR and DQ genotypes. Briefly, genomic DNA was extracted from EDTA-treated blood of patients and HLA-DRB1 and HLA-DQB1 alleles were determined by PCR with sequence-specific primers (28) using the high resolution SSP UniTray (PEL-FREEZE Clinical System, Brown Deer, Wis.). The primer sets amplifying the alleles were described by the international nomenclature committee of WHO (<http://www.anthonynolan.org.uk/HIG/index.html>). The panel of HLA-DRB1 alleles and HLA-DQB1 allele were analyzed according to the manufacturer's protocol.